This fact sheet was distributed to provide public health information regarding the detection of trace amounts of chromium and chromium-6 in the Kingston Water system.

These results were previously reported to the EPA and were reported to our customers in the 2014 and 2015 Annual Water Quality Statement

What is chromium and how does it get into drinking water?

- Chromium is an odorless and tasteless metal. It is the 21st most common element in the earth's crust and is naturally found in water, plants, rocks, soil, and animals (including humans). There are two common forms of chromium:
    - Chromium-3: It is an essential human dietary element found in vegetable, meats, fruits, grains, and yeast. Chromium-3 is found in most multivitamins.
    - Chromium-6: Also known as hexavalent chromium, it can be generated from natural deposits of chromium as well as industrial processes such as steel manufacturing and pulp mills.
    - Chromium in most drinking water supplies originates from natural sources and ground water is likely to have higher levels of chromium than surface supplies

How is chromium regulated by the USEPA?

- EPA has established a maximum contaminant limit (MCL) for Total chromium of 100 parts per billion (ppb). Total chromium includes all forms of chromium (chromium-6 plus chromium-3). In water and in the human body, chromium-3 and chromium-6 readily migrate between forms, depending upon conditions. Measuring one form may not capture all of the chromium present. As a result, EPA has not, as yet, established a separate MCL for chromium-6 and, when setting the standard for total chromium, assumed that all of the chromium in the sample was chromium-6.
    - The NYS Sanitary Code has adopted the EPA's MCL of 100 ppb for total chromium.
- EPA is currently preparing an assessment of the health effects of chromium-6 and will re-evaluate the current standard for total chromium and will determine if a separate standard for chromium-6 should be established

Kingston's chromium results

- **Total Chromium: Average = 0.28 parts per billion (ppb) (Range = Non Detect to 0.28 ppb)**
    - *These results are well below the EPA or NYS standard of 100 ppb for total chromium, so there are no special actions that our customers need to take.*
- **Chromium-6: Average 0.046 ppb. (Range 0.038 ppb to 0.056 ppb)**
    - *There is no EPA or NYS standard for chromium-6.*

The Health Effects of Chromium

- Chromium-3 is an essential nutrient for humans and is contained in most multi-vitamins. It has a relatively low toxicity and would be a concern in drinking water only at very high levels.

- Inhalation of chromium-6 dust or vapor has been shown to increase the risk of lung cancer. It has also been shown that continued exposure to chromium-6 could result in allergic dermatitis and that was taken into consideration when EPA established the 100 ppb limit is drinking water. Exposure to chromium-6 by ingestion in drinking water is less well agreed upon and there are conflicting scientific studies on this topic. EPA is currently preparing an assessment of the health effects of chromium-6 and will re-evaluate the current standard for total chromium and will determine if a separate standard for chromium-6 should be established

What does it all mean?

- As part of that assessment, EPA required all public water systems serving a population of more than 10,000 to monitor for both total chromium and chromium-6 to determine their incidence of occurrence in drinking water. Sampling was phased in based on system size and Kingston collected samples quarterly for four quarters beginning in April 2014.
- Approximately 5,000 water utilities participated in this testing and total chromium and chromium-6 were detected in some 75% of the samples across the US. However, only one utility detected levels that exceeded the EPA's 100 ppb MCL for total chromium. **Kingston's average total chromium level in this testing was 0.28 ppb, some 350 times lower than EPA's MCL of 100 ppb.** While EPA has not established a separate standard for chromium-6, the State of California has set a limit for chromium-6 of 10 ppb. While this limit applies only to water supplies in California, less than 2% of the 5,000 water supplies that were required to test reported levels that exceeded California's MCL of 10 ppb. **Kingston's average chromium-6 level in this testing was 0.0464 ppb, more than 200 times lower than the California standard.**

Information on chromium in drinking water at:
https://www.epa.gov/dwstandardsregulations/chromium-drinking-water#what-are-dw-regs
http://www.drinktap.org/water-info/whats-in-my-water/chromium.aspx

Information on the federal regulation development process at:
http://water.epa.gov/lawsregs/rulesregs/regulatingcontaminants/index.cfm

Kingston's 2015 Annual Water Quality Report at:
http://kingston-ny.gov/awqr2015